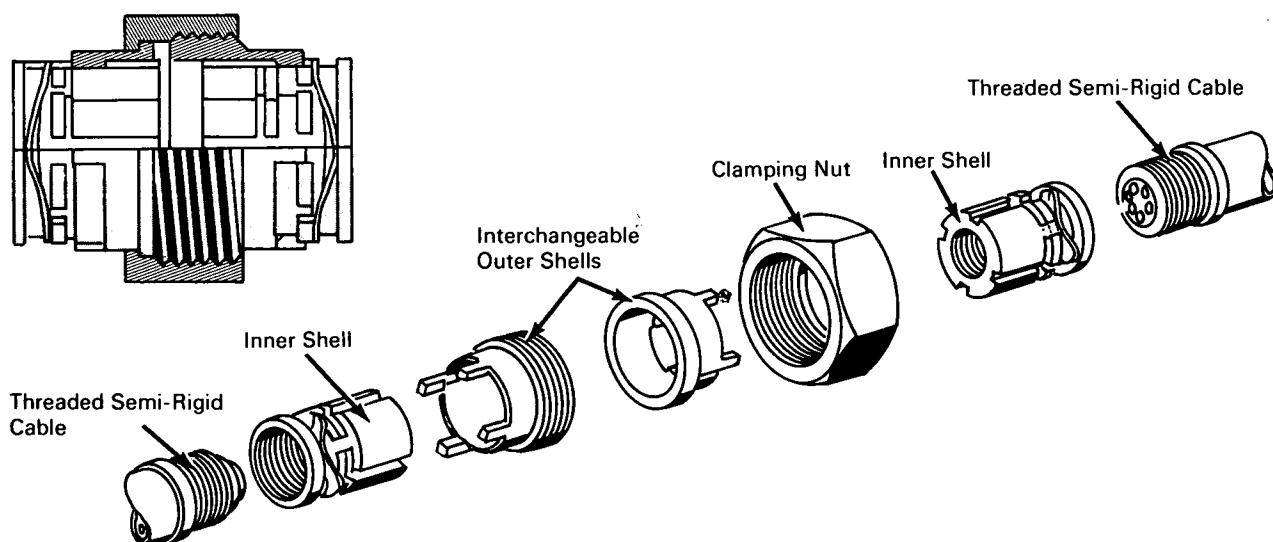


NASA TECH BRIEF



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Connector Acts as Quick Coupling in Coaxial Cable Applications



The problem:

Present coaxial cable connectors employ a skive ring to couple the connector body to the cable and this ring frequently galls and deforms the cable, adversely affecting the connection electrical characteristics. Also, present connectors require a great deal of time and effort in accomplishing a good coupling plus a relatively high degree of skill on the part of the technician.

The solution:

A quick-coupling connector whose inner shells are threaded to the cable ends and whose outer shells have tracks that register in channels machined in the inner shells and are then rotated 45° to effect

a locking of the coupling. A clamping nut holds the outer shells together and prevents their unlocking.

How it's done:

Each connector inner shell has four L-shaped channels machined at 90° intervals, and each outer shell has four tracks also machined at 90° intervals. The inner shells are first threaded onto the two cable ends to be joined; the outer shell tracks are then guided through the inner shell channels until they bottom, at which time the outer shells are rotated 45° and locked to the inner shells. The clamping nut is brought into engagement with the outer shells and forces the raised flange of the unthreaded shell against the end of the threaded shell as it engages that shell's threads.

(continued overleaf)

Notes:

1. An air transition that is formed by the connector interface serves as an impedance matching device to yield a very low voltage standing wave ratio of less than 1.02 over the S-band frequency range with an insertion loss of less than 0.01 db.
2. This connector faithfully reproduces excellent electrical characteristics no matter how frequently assembled and disassembled.

3. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91103
Reference: B66-10621

Patent status:

No patent action is contemplated by NASA.

Source: Albert G. Brejcha, Jr.
(JPL-803)